WHAT IS CLAIMED IS:

1. A method of conserving energy in a node in a wireless network, comprising:

receiving a first powering-on schedule from another node in the network; and

selectively powering-on at least one of a transmitter and receiver based on the received first schedule.

2. The method of claim 1, wherein the wireless network comprises an ad-hoc, multi-node wireless network.

3. The method of claim 1, wherein the wireless network comprises a wireless sensor network.

4. The method of claim 1, further comprising:

producing a second powering-on schedule based on the first powering-on schedule.

5. The method of claim 4, further comprising:

transmitting the second powering-on schedule to other nodes in the network when the transmitter is in a powered-on state.

6. A node in a wireless network, comprising:

a transmitter;

a receiver configured to receive a powering-on schedule from another node in the network; and

a processing unit configured to selectively power-on at least one of the transmitter and receiver based on the received powering-on schedule.

7. A computer-readable medium containing instructions for controlling at least one processor to perform a method of conserving energy in a node in a wireless network, the method comprising:

receiving a powering-on schedule from another node in the network; and

selectively powering-on at least one of a transmitter and receiver based on the received schedule.

8. A method of conveying messages in a sensor network, comprising:

organizing a sensor network into a hierarchy of tiers;

transmitting one or more transmit/receive scheduling messages throughout the network; and

transmitting and receiving data messages between nodes in adjacent tiers based on the one or more transmit/receive scheduling messages.

9. The method of claim 8, wherein the transmit/receive scheduling messages comprise time schedules for powering-on and powering-off transmitters and receivers at each of the nodes in the adjacent tiers.

10. The method of claim 8, wherein a destination of the data messages comprises at least one data collection point.

11. The method of claim 10, wherein the at least one data collection point resides in a lowest tier of the network.

12. The method of claim 8, wherein at least one sensor node in a tier of the network receives data messages from sensor nodes in a higher tier and forwards the data messages to a sensor node in a lower tier.

13. A system for conveying messages in a sensor network, comprising:

means for organizing a sensor network into tiers;

means for transmitting one or more transmit/receive scheduling messages throughout the network; and

means for transmitting and receiving messages between nodes in adjacent tiers based on the one or more transmit/receive scheduling messages.

14. A method of conserving energy in a multi-node network, comprising:

organizing the multi-node network into tiers;

producing a transmit/receive schedule at a first tier in the network; and

controlling the powering-on and powering-off of transmitters and receivers in nodes in a tier adjacent to the first tier according to the transmit/receive schedule.

15. The method of claim 14, further comprising:

transmitting a schedule message to nodes in the tier adjacent to the first tier, the schedule message comprising the transmit/receive schedule.

16. The method of claim 14, further comprising:

receiving data messages from the nodes in the adjacent tier when the transmitters for the nodes in the adjacent tier are powered-on.

17. The method of claim 14, further comprising:

transmitting schedule messages to the nodes in the adjacent tier when the receivers for the nodes in the adjacent tier are powered-on.

18. A system for conserving energy in a multi-node network, comprising:

means for organizing the multi-node network into tiers;

means for producing a transmit/receive schedule at a first tier in the network; and

means for controlling the powering-on and powering-off of transmitters and receivers in nodes in an adjacent tier according to the transmit/receive schedule.

19. A method of forwarding messages at a first node in a network, comprising:

receiving scheduling messages from a plurality of nodes in the network;

selecting one of the plurality of nodes as a parent node; and

selectively forwarding data messages to the parent node based on the received scheduling message associated with the selected one of the plurality of nodes.

20. The method of claim 19, further comprising:

organizing nodes in the network into a hierarchy of tiers.

21. The method of claim 20, wherein the plurality of nodes reside in a higher tier than the first node.

22. The method of claim 20, wherein the data messages are destined for a data collection point residing in a lowest tier of the network.

23. A node in an ad-hoc, wireless network, comprising:

a receiver configured to receive scheduling messages from a plurality of nodes in the network; and

a processing unit configured to:

select one of the plurality of nodes as a parent node, and

selectively forward messages to the parent node based on the received scheduling message associated with the parent node.

24. A computer-readable medium containing instructions for controlling at least one processor to perform a method of forwarding messages in a network, the method comprising:

receiving scheduling messages from a plurality of nodes in the network;

selecting one of the plurality of nodes as a parent node; and

selectively forwarding messages to the parent node based on one of the received scheduling messages associated with the selected one of the plurality of nodes.

25. A method of conserving power at a first node in a network, comprising:

powering-on a receiver to listen for scheduling messages;

receiving scheduling messages from at least one node in the network; and

selectively powering-on and powering-off the receiver based on a schedule associated with one of the received scheduling messages.

26. The method of claim 25, further comprising:

organizing nodes in the network into a hierarchy of tiers.

27. The method of claim 26, further comprising:

selectively powering-on and powering-off a transmitter based on the schedule associated with one of the received scheduling messages.

28. The method of claim 27, further comprising:

transmitting data messages to a node in a lower tier of the network when the transmitter is powered-on.

29. The method of claim 27, further comprising:

transmitting scheduling messages to nodes in a higher tier of the network when the transmitter is powered-on.

30. A node in an ad-hoc, wireless network, comprising:

a receiver configured to receive scheduling messages from at least one node in the network; and

a processing unit configured to:

power-on the receiver to listen for the scheduling messages, and

subsequent to receipt of at least one of the scheduling messages, selectively power-on and power-off the receiver based on a schedule associated with one of the scheduling messages.

31. A computer-readable medium containing instructions for controlling at least one processor to perform a method of conserving power at a node in a network, the method comprising:

powering-on a receiver to listen for scheduling messages;

receiving scheduling messages from at least one node in the network; and

selectively powering-on and powering-off the receiver based on a schedule associated with one of the received scheduling messages.

32. A data structure encoded on a computer-readable medium, comprising:

first data comprising identifiers of sensor nodes affiliated with a parent node in a network; and

second data comprising a first time schedule for transmitting messages from the parent node to the affiliated sensor nodes and a second time schedule for receiving messages at the parent node from each of the affiliated sensor nodes.

33. The data structure of claim 32, further comprising:

third data comprising a third time schedule allocating times for the affiliated sensor nodes to transmit to, and receive messages from, other sensor nodes in the sensor network.

34. The data structure of claim 32, further comprising:

third data comprising an identifier for the parent node.